

Severe local storms, May 1929—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
New Jersey (central and northern).	19					Wind	Power and communication lines and houses damaged.	Official, U. S. Weather Bureau.
Ysleta, Tex.	20	P. m.				Hail.	Much cotton destroyed or damaged.	Do.
Moriarty, N. Mex.	21					Tornado and hail.	Minor property damage.	Do.
Fabens, Tex.	22	5 p. m.	1,760			Hail.	Some cotton and considerable fruit destroyed.	Do.
Del Rio, Tex. (near).	23					Tornado.	Severe damage to crops.	Do.
Smithville, Okla.	25	4 p. m.	33		700	Wind.	Every business house except one damaged.	Do.
Cuthbert, Tex. (near).	25		3 mi.		250,000	Heavy hail.	Damage principally to crops and buildings; poultry and livestock killed.	Do.
Sealy, Tex.	26	12:15 a. m.	500		12,500	Tornado.	Several homes and 2 churches demolished.	Do.
Beaumont, Tex.	26	3 a. m.		1	25,000	Wind.	Oil derricks wrecked; plate glass broken.	Do.
Pasadena, Tex.	26	do.	20		2,000	Tornado.	Crops and buildings damaged.	Do.
Hyannis, Nebr. (near).	26	5 p. m.	16		250	do.	Slight damage to buildings on one ranch.	Do.
Encinal, Tex. (near).	26	8:20 p. m.	880			Hail.	Young cotton killed.	Do.
Albert Lea, Minn. (near).	26				10,000	Tornado.	Considerable property loss.	Do.
Lyon County, Iowa.	28	5 p. m.			2,700	do.	Character of damage not reported.	Do.
Plymouth, Clay, and Palo Alto Counties, Iowa.	28	do.			3,500	Wind.	do.	Do.
Yokum, Tex.	28	11 p. m.	400		700	Tornado.	2 buildings damaged.	Do.
Johnstown Pa.	28			2		Thunderstorm.	Grandstand struck by lightning; 6 persons injured.	Do.
Columbus, N. Mex.	30					Tornadoic wind.	Wire service impaired; several buildings wrecked.	The New Mexican (Santa Fe, N. Mex.)
Florence, N. J.	31					Thunderstorm and wind.	Buildings damaged; wires broken by falling trees.	Official, U. S. Weather Bureau.

627.41 (73) RIVERS AND FLOODS

By H. C. FRANKENFIELD

The Mississippi River was above the flood stage from the mouth of the Ohio River southward at the end of May, and probably will not fall below that stage at New Orleans, La., until the end of June. Discussion of this flood will therefore be included in the report for June.

The outstanding floods of the month of May were those of the rivers of central and eastern Texas. They were caused by rains attendant upon a series of slow moving and often poorly defined barometric depressions from the Southern Plateau and the extreme Southwest during the last two decades of May. After a month of generally dry weather, these depressions brought light rains as early as May 10 and heavy general rains on May 12-13, and still heavier ones on May 17-18, 25-26, and especially May 28-30. As a whole the month was the wettest of record for the State of Texas, with an average rainfall of 7.70 inches against the previous high record of 7.68 inches in May, 1914. The greatest fall of the month, 22.55 inches, occurred at Rockland on the Neches River, with a maximum fall, as recorded by the observer, of 11.05 inches between 4 p. m. and midnight, May 27.

Resulting floods were, of course, severe and the heavy downstream rains, coming as they did when the middle and upper portions of the rivers were at or above the flood stages, intensified the high stages as the crests advanced.

The floods were greatest and most destructive in the Trinity and Brazos Rivers and their tributaries. The Sabine River flood was moderate, while those in the Colorado and Guadalupe Rivers were quite pronounced. The Neches flood was also moderate.

The most spectacular floods of the State were those of the Buffalo River and White Oak Bayou above and through Houston on May 31. They were due to the heavy rains of May 28-30, and the stages reached were said to have been the highest since 1879, although there are no actual gage readings to substantiate this statement. Levels run by the city engineer of Houston, Mr. Fugate, showed a stage on May 31 of about 32 feet above mean tide immediately below the confluence of the two streams which is usually at tide level. Mr.

Fugate also computed previous high stages as follows: 1854, 32.3 feet; 1879, 34.3 feet; 1907, 24.9 feet.

A considerable area of the city of Houston was flooded, and damage and loss amounted to about \$1,000,000.

Timely warnings were issued for all floods, and the aggregate savings of livestock and other movable property reached a very gratifying figure. Unfortunately the growing season was so well advanced that the greatest losses will come from crop destruction. How much relief may be obtained from later plantings is problematical, but in any event the actual losses will run into millions of dollars.

Loss and damage as reported were as follows. The figures given are very incomplete:

Drainage	Tan- gible prop- erty	Crops			Live- stock and other move- able prop- erty	Susten- sion of busi- ness	Total	Saved through warn- ings
		Mature, amount	Prospective					
			Acres	Amount				
Sabine.....	\$50,000	\$15,000	1,700	\$26,000			\$91,000	
Neches.....	25,000	25,000	2,500		\$15,000		65,000	
Trinity.....	254,250		29,970	2,239,000	2,500	\$63,500	2,559,250	\$187,500
Brazos.....	88,000	438,000	173,950	1,779,625	11,500	28,000	2,345,125	616,000
Total..	417,250	478,000	208,120	4,044,625	29,000	91,500	5,060,375	803,500

¹ Plus \$1,026,175 not itemized.

Later report will be made regarding loss and damage figures for the floods in the Colorado, Guadalupe, and Nueces Rivers.

There were no floods of consequence in the Atlantic and East Gulf drainage areas, although high stages prevailed throughout the month in the Santee River, which river has been in flood almost continuously since February 10.

Little or no damage resulted from these floods, except in the lowest bottom lands along the Black Warrior River below Tuscaloosa, Ala., and the Tombigbee River below Demopolis, Ala. In this district the reported loss of property amounted to \$129,300, of which \$23,900 was in tangible property, \$14,000 in prospective crops (12,400 acres), \$14,000 in livestock and other movable property,

and \$45,500 through suspension of business. The given value of property saved through the warnings was \$183,100.

No flood stages occurred in the Ohio River above Dam No. 47, Newburgh, Ind. At and below this place flood stages were general although not of great consequence, despite the rather high stages between Shawneetown, Ill., and Dam No. 50, Fords Ferry, Ky., and from Dam No. 53, Grand Chain, Ill., to the mouth of the river. At Cairo, Ill., the river was continuously above the flood stage of 45 feet from March 6 to April 21, and again from April 29 to June 2, all inclusive.

Reports of loss and damage in the Cairo district are yet to come. Elsewhere along the Ohio River, while there was some inconvenience and delay in farming operations, there was no material damage. Moderate floods in the interior rivers of the State of Ohio also passed off without damage of consequence.

Floods in the lower Wabash system of Indiana were more damaging. They were caused by four rain periods, and occurred in two or three irregular groups. As the growing season was quite well advanced and Wabash flood crests were generally higher than in April, the damage to prospective crops was comparatively large, the total estimate amounting to \$319,300. There were also \$4,680 in tangible property losses and \$53,200 due to business suspension, a total of \$377,360. The reported value of property saved through the warnings was \$44,250.

At the beginning of the month the Mississippi River about the mouth of the Ohio was generally in flood as far north as the mouth of the Des Moines River, and it was not until May 28 that the river fell below the flood stage at Cape Girardeau, Mo., the first station above Cairo. Stages had also been much above normal during most of April and May, and the prolonged high waters ruined wheat and prevented planting in unleveed ground. Levees below St. Louis were softened, and the Grand Tower, Ill., levee broke, flooding 2,620 acres. There was also much crop loss under unbroken levees on account of inside flooding from frequent and heavy rains. City losses were mostly in cessation of business activities.

In the 230 miles of the alluvial drainage of the Illinois River below Utica, Ill., stages have been high since December, 1928, with three well defined swells, one in the latter part of January and the first half of February, a second in the latter part of March, and a third in the first half of April, 1929. They were not unusually high, but with their long duration they were high enough to greatly interfere with the natural drainage into the river.

The Grand River of Missouri was in severe flood from April 20 to 27, and most of the bottom-land wheat left by the March flood was killed, yet the Grand Valley suffered less than most other parts of the State of Missouri during April and May. (However, an unusually high flood came in June, and all farming operations for May came to naught.)

There was a severe flood in the Osage River of Missouri during the second week of April and a very high one in the second week of May. Wheat in bottom lands was an entire loss, highways and fences were greatly damaged, and in the town of Tuscumbia everything was at a standstill during the May flood. The business section of the town was entirely under water, but the timely warnings gave ample time to remove merchandise and there was no actual loss.

There was one flood in April and three in May in the Meramec River of Missouri, but only minor damage resulted. Similar conditions prevailed along the Black River of Missouri.

During April and May there were frequent fluctuations in the Missouri River below the mouth of the Osage. Above the mouth of the Osage as far as Lexington the river was high, but there was only one flood, and that during the latter part of April. Damage was of the same nature as in other portions of the district plus a heavy loss entailed through the enforced suspension of work in connection with the construction of the new highway bridge at Hermann, Mo.

Loss and damage data in the St. Louis district so far as reported are as follows:

River	Tangible property	Crops		Live-stock and other movable property	Suspension of business	Total
		Matured	Prospective			
Grand.....	\$65,000	\$125,000	\$75,000	-----	-----	\$265,000
Osage.....	35,000	75,000	25,000	-----	-----	135,000
Meramec.....	5,000	7,000	5,000	-----	-----	17,000
Black.....	1,000	1,500	1,000	-----	-----	3,500
Missouri ¹	172,000	115,000	313,000	\$5,000	\$56,000	661,000
Illinois.....	10,000	13,000	590,000	-----	10,000	623,000
Mississippi ²	239,000	165,000	590,000	82,000	360,000	1,436,000
Total.....	527,000	501,500	1,599,000	87,000	426,000	3,140,000

¹ Below Lexington, Mo.

² Not including towns of Louisiana and Cape Girardeau, Mo.

The reported value of property saved through the warnings was \$475,600.

During May there were floods in the basins of the Smoky Hill, Neosho, Marais des Cygnes (Osage), and Marmaton Rivers of Kansas. The Smoky Hill flood was worst at Salina, Kans., where property damage was estimated at \$50,000. During the night of May 10-11, 5.85 inches of rain fell at Herington, Kans., and Lyons Creek, a nearby tributary of the Smoky Hill River, rose 10 feet in 20 minutes, sending a raging torrent through the city. Three men were drowned, the Main Street bridge was washed out, and six bents of a railroad bridge were lost. Other damage was of the usual nature and the total was estimated at \$200,000. The total reported damage in the Smoky Hill Basin was \$536,000. In the Neosho Basin several towns were more or less overflowed and crops in Neosho and Labette Counties badly damaged. At Council Grove, Kans., 4.60 inches of rain fell during the night of May 10-11, and water stood 2 to 3 feet in depth on Main Street. Local damage was estimated at \$50,000. The total reported for the Neosho Basin within the State of Kansas was \$391,850, mostly in growing crops.

The Marais des Cygnes (Osage) flood was not very serious, although one life was lost and damage amounted to \$50,000.

Another severe flood occurred in the Marmaton River, a tributary of the Osage, during May 11 and 12, and at Fort Scott, Kans., the crest stage at 7:20 a. m., May 12, was 37.1 feet, only 0.2 foot below that of August, 1927. Loss and damage amounted to about \$50,000. The reported value of property saved through flood warnings in this eastern Kansas district, excluding direct Arkansas River drainage, was \$71,000.

There were moderate floods in the Arkansas River within the State of Kansas, but without results of consequence. They were caused mainly by the heavy rains of May 10-11 at Great Bend, Kans., and over the drainage basin of Walnut Creek in which the resultant damage was estimated at \$60,500, of which \$31,000 was in tangible property, \$28,500 in prospective crops, and \$1,000 in livestock and other movable property.

Below the Kansas-Arkansas line the Arkansas and Neosho Rivers were generally in flood, as was also the Verdigris River of Kansas and Oklahoma, and the White River of Arkansas. The floods were caused by the same series of heavy rains that fell over eastern Kansas with the same maximum effectiveness on May 11 and 12. The Arkansas River was not in actual flood above Webbers Falls, Okla., but at and below that place flood conditions were quite marked. There were three decided rises from Webbers Falls to Fort Smith, Ark., with crests during the second rise from 6 to 8 feet above the flood stage on May 15 and 16. However, by the time Little Rock, Ark., was reached, this second crest was the only one of importance remaining, and this condition continued to the mouth of the river. Crest stages were relatively lower east of Fort Smith, except near the mouth of the river where backwater from the Mississippi flood caused very high stages that continued at the close of the month.

The floods in the Verdigris and lower Neosho Rivers were heavy and destructive and about 125,000 acres of land overflowed, 15,000 of which were in the Verdigris district of Kansas. East of Fort Smith the overflowed area in the Arkansas basin was estimated at 500 square miles, or 320,000 acres, much of which consisted of cultivated land. The area of overflowed land in the White River Basin was about 800 square miles, or 512,000 acres, notwithstanding the fact that the maximum stages were only a few feet above the flood line.

Reports of loss and damage were very incomplete. Figures received show at least \$1,750,000, mainly in prospective crops, with the exception of about \$250,000 due to suspension of sand and gravel business in Oklahoma. In the Fort Smith district savings to the same industry through warnings were given as \$100,000.

Floods in Red River west of Shreveport, La., and in the Sulphur River of Texas were of good proportions and quite damaging to highways and growing crops. Loss and damage as reported aggregated \$89,450, the Sulphur River share being \$17,000. Of the total amount, \$78,450 was in prospective crops (13,189 acres), and \$11,000 in tangible property. Reported value of property saved through flood warnings, \$73,700. One life was lost.

Moderate floods in the Colorado River and tributaries and in the Rio Grande in New Mexico were well covered by warnings. No material damage appears to have been caused.

[All dates in May unless otherwise specified]

[All dates in May unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
EAST GULF DRAINAGE					
Alabama: Selma, Ala.....	Feet 35	10	10	Feet 35.1	10.
Coosa:					
Gadsden, Ala.....	22	4	5	22.0	4-5.
Lock No. 4, Lincoln, Ala.....	17	2	7	17.9	5.
Cahaba: Centerville, Ala.....	25	19	19	25.0	19.
Tombigbee: Lock No. 4, Demopolis, Ala.....	39	22	24	40.3	23.
Black Warrior: Lock No. 10, Tuscaloosa, Ala.....	46	9	11	48.5	10.
Pearl: Jackson, Miss.....	20	(1)	1	20.6	Apr. 29-30.
GREAT LAKES DRAINAGE					
St. Joseph: Montpelier, Ohio.....	10	3	5	11.2	3.
Saginaw: Saginaw, Mich.....	19	5	6	19.0	5-6.
Flint: Flint, Mich.....	11	4	4	11.2	4.
MISSISSIPPI DRAINAGE					
Ohio:					
Dam No. 47, Newburgh, Ind.....	35	8	19	38.0	17.
Evansville, Ind.....	35	8	19	38.5	17.
Dam No. 48, Cypress, Ind.....	35	10	19	37.4	16-17.
Shawneetown, Ill.....	35	8	June 1.	40.2	18.
Dam No. 50, Fords Ferry, Ky.....	35	8	June 1.	41.0	17-19.
Dam No. 51, Golconda, Ill.....	38	13	21	39.1	15, 16.
Paducah, Ky.....	43	13	19	43.9	16.
Dam No. 52, Brookport, Ill.....	43	13	21	44.2	16.
Dam No. 53, Grand Chain, Ill.....	44	6	June 1.	49.3	18.
Cairo, Ill.....	45	(1)	June 2.	52.7	19.
Shenango: Sharon, Pa.....	9	3	5	10.9	4.
Tuscarawas: Coshocton, Ohio.....	8	6	6	8.4	6.
Walhonding: Walhonding, Ohio.....	8	15	15	8.5	15.
Scioto:					
Larne, Ohio.....	11	15	15	12.2	15.
Circleville, Ohio.....	10		16	11.7	16.
Green:					
Lock No. 4, Woodbury, Ky.....	33	8	11	36.6	9.
Lock No. 2, Rumsey, Ky.....	34	9	15	36.0	12-13.
Rig Barren: Bowling Green, Ky.....	20	8	8	21.1	8.
Wabash:					
Lafayette, Ind.....	13	4	4	13.3	4.
		15	21	16.7	16.
		5	6	16.7	5.
Covington, Ind.....	16	15	22	20.0	16-17.
		30	30	16.0	30.
Terre Haute, Ind.....	16	14	23	19.4	20.
Vincennes, Ind.....	14	16	28	20.1	22.
Mt. Carmel, Ill.....	16	6	12	18.7	10.
White: Decker, Ind.....	18	14	31	23.7	23.
White, East Fork:		17	28	22.0	25.
Seymour, Ind.....	10	15	15	10.3	15.
Shoals, Ind.....	20	20	21	10.4	20.
		19	23	21.5	20.
Elliston, Ind.....	19	15	24	24.9	22.
		30	31	19.1	30.
		6	8	16.9	7.
White, West Fork: Edwardsport, Ind.....	15	15	26	18.9	23.
		30	(2)	16.8	31.
Tennessee: Riverton, Ala.....	33	9	14	36.0	11.
Big Pigeon: Newport, Tenn.....	6	7	7	7.4	7.
Clinch: Clinton, Tenn.....	25	21	22	28.3	21.
Elk: Fayetteville, Tenn.....	14	7	7	14.2	7.
		9	10	18.5	9.
Mississippi:					
Keokuk, Iowa.....	14	(1)	3	19.4	Mar. 23.
Warsaw, Ill.....	17	(1)	3	22.0	Mar. 23.
Quincy, Ill.....	14	(1)	8	21.4	Apr. 23, 27.
Hannibal, Mo.....	13	(1)	11	22.1	Apr. 27.
Louisiana, Mo.....	12	(1)	11	21.1	Apr. 27.
Grafton, Ill.....	18	(1)	23	26.2	Apr. 28.
Alton, Ill.....	21	(1)	24	30.1	Apr. 28.
St. Louis, Mo.....	30	(1)	7	34.6	Apr. 27-28.
		15	23	33.3	20.
Mississippi:					
Chester, Ill.....	27	(1)	25	33.3	Apr. 28.
Cape Girardeau, Mo.....	30	(1)	28	32.6	May 22.
New Madrid, Mo.....	34	(1)	(2)	37.4	22.
				41.3	19, 20, 23, 24.
Memphis, Tenn.....	35	(1)	(2)	41.7	26.
Helena, Ark.....	44	(1)	(2)	52.6	28-30.
Arkansas City, Ark.....	48	(1)	(2)	58.8	29-31.
Greenville, Miss.....	42	(1)	(2)	53.2	23-June 1.
Vicksburg, Miss.....	45	(1)	(2)	55.2	June 6, 7.
Natchez, Miss.....	46	(1)	(2)	54.5	June 5-11.
Angola, La.....	45	(1)	(2)		
Baton Rouge, La.....	35	(1)	(2)	43.5	June 10-12.
Donaldsonville, La.....	28	(1)	(2)	34.0	June 10.
Reserve, La.....	22	(1)	(2)		
New Orleans, La.....	17	(1)	(2)	20.0	June 9.
Salt: New London, Mo.....	20	15	15	21.3	May 15.

River and station	Flood stage	Above flood stages--dates		Crest	
		From—	To—	Stage	Date
ATLANTIC DRAINAGE					
	<i>Feet</i>			<i>Feet</i>	
Connecticut: Hartford, Conn.-----	16	(1)	9	17.7	1.
Chenango: Sherburne, N. Y.-----	8	3	3	8.3	3.
Neuse: Smithfield, N. C.-----	14	23	23	14.0	23.
Cape Fear: Elizabethtown, N. C.-----	22	23	23	23.0	23.
		4	5	17.1	4 and 5.
Peedee: Mars Bluff, S. C.-----	17	9	12	17.4	10 and 11.
		23	28	18.0	25.
Lynches: Effingham, S. C.-----	14	8	10	14.8	9.
Santee:					
Rimini, S. C.-----	12	(1)	(2)	17.7	6.
Ferguson, S. C.-----	12	(1)	(2)	17.5	Mar. 10.
Jamestown, S. C.-----	12		(2)	17.4	11-13.
Congaree: Columbia, S. C.-----	15	2	3	17.2	2.
Saluda:					
Pelzer, S. C.-----	7	7	7	7.6	7.
Chappells, S. C.-----	14	(1)	4	19.5	2.
Three Mile Post, N. C.-----	8	2	3	9.8	3.
Broad: Carlton, Ga.-----	11	2	2	14.0	2.
Oconee: Milledgeville, Ga.-----	22	2	2	22.8	2.
Ocmulgee: Abbeville, Ga.-----	11	10	11	11.2	10, 11.

¹ Continued from last month.

² Continued at end of month.

¹ Continued from last month.

² Continued at end of month.

(All dates in May unless otherwise specified)

(All dates in May unless otherwise specified)

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
EAST GULF DRAINAGE—continued					
Illinois:	<i>Feet</i>			<i>Feet</i>	
Peru, Ill.	14	(1)	20	20.3	Apr. 2, 3.
Henry, Ill.	10	(1)	24	15.4	Apr. 4.
Peoria, Ill.	18	(1)	14	21.8	Apr. 5, 6, 9.
Havana, Ill.	14	(1)	(2)	19.6	Apr. 6.
Beardstown, Ill.	14	(1)	(2)	21.2	Apr. 6.
Pearl, Ill.	12	(1)	(2)	21.3	Apr. 29-30.
Meramec:					
Steelville, Mo.	12	7	7	13.4	7.
		2	10	18.1	9.
Pacific, Mo.	11	14	16	15.4	16.
		19	22	13.2	21.
Valley Park, Mo.	14	3	10	20.5	8.
		14	22	21.1	16.
		4	4	12.2	4.
Bourbeuse: Union, Mo.	12	8	8	12.1	8.
		20	21	13.9	21.
St. Francis:					
St. Francis, Ark.	18	8	26	25.2	19.
Marked Tree, Ark.	17	25	(2)	17.5	28, 29.
Missouri:					
Hermann, Mo.	21	14	21	24.2	19.
St. Charles, Mo.	25	3	3	25.2	3.
		14	23	30.3	19.
Smoky Hill:					
Mentor, Kans.	22	12	16	25.4	16.
Salina, Kans.	20			22.6	16.
Osage:					
Osceola, Mo.	20	7	10	22.6	8.
		13	27	30.6	21.
Warsaw, Mo.	22	8	8	23.0	8.
		13	26	34.8	19.
Tuscumbia, Mo.	25	9	9	25.7	9.
		14	28	36.9	22.
Arkansas:					
Webbers Falls, Okla.	23	13	23	28.9	15.
Fort Smith, Ark.	22	10	11	22.4	11.
		13	24	29.7	16.
Ozark, Ark.	22	15	23	24.9	17.
		14	25	26.9	18.
Dardanelle, Ark.	20	28	28	20.0	28.
Morrilton, Ark.	20	15	25	26.6	19.
Little Rock, Ark.	23	18	20	23.3	19.
		24	24	23.0	24.
Pine Bluff, Ark.	25	16	27	27.6	20.
Yancopin, Ark.	20	(1)	(2)	44.8	28-30.
Neosho:					
Neosho Rapids, Kans.	22	13	14	25.7	13.
		7	7	17.3	7.
Oswego, Kans.	17	12	21	22.7	13-14.
		13	15	26.2	14.
Wyandotte, Okla.	23	19	20	23.4	19.
		13	15	27.9	14.
Pensacola, Okla.	24	19	20	26.4	20.
		10	10	22.7	10.
Fort Gibson, Okla.	22	13	22	30.0	15.
Verdigris:					
Independence, Kans.	30	8	8	31.6	8.
		12	15	42.5	13.
Sageeyah, Okla.	35	13	19	39.0	18.
Petit Jean: Danville, Ark.	20	20	21	21.8	20.
White:					
Cotter, Ark.	21	9	9	21.0	9.
Calico Rock, Ark.	18	9	11	24.2	9.
Batesville, Ark.	23	9	16	30.6	10.
Newport, Ark.	26	10	19	29.5	12.
Georgetown, Ark.	22	(1)	31	26.3	17, 18.
		(1)	6	26.2	Apr. 22, 23, 25, 26.
DeValls Bluff, Ark.	24				20.
		13	20	26.8	May 19-20.
		(1)	4	30.7	Apr. 25-27.
Clarendon, Ark.	30	18	(2)	31.3	May 24, 25.
Black:					
Leeper, Mo.	11	7	7	12.5	7.
			7	12.5	7.
Williamsville, Mo.	11	13		15.6	14.
		8	11	16.3	9.
Poplar Bluff, Mo.	14	14	17	17.8	15.
		(1)	(2)	13.7	Apr. 16, 17.
Corning, Ark.	11				May 19.
		4	31	14.5	May 19.
Black Rock, Ark.	14	(1)	4	22.7	Apr. 11.
		7	(2)	22.3	May 20.
Cache: Patterson, Ark.	9	10	22	10.3	16.
Yazoo: Yazoo City, Miss.	25	(1)	(2)	29.7	1.
		(1)	8	31.7	Mar. 29-31.
Tallahatchie: Swan Lake Miss.	25				Apr. 1.
		19	21	25.0	May 19-21.
Red:					
Index, Ark.	27	20	22	27.2	21.
Fulton, Ark.	28	19	26	31.1	23.
Sulphur:					
Ringo Crossing, Tex.	20	10	22	24.4	14, 15, 19, 20.
Finley, Tex.	24	17	27	26.4	19.

¹ Continued from last month.
² Continued at end of month.

³ Below flood stage at 8 a. m., May 1.

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
EAST GULF DRAINAGE—continued					
Ouachita: Arkadelphia, Ark.	<i>Feet</i> 12	15	15	<i>Feet</i> 14.1	15.
Atchafalaya:					
Simmesport, La.	41	(1)	(2)		
Melville, La.	37	(1)	(2)	43.1	June 9-15.
WEST GULF DRAINAGE					
Neches:					
Rockland, Tex.	22	{ 16	19	23.3	19.
		{ 28	June 6.	26.8	June 1.
Beesmont, Tex.	7	{ 22	24	7.3	23.
		{ 30	June 12.	13.4	June 2.
Sabine:					
Logansport, La.	25	June 10.	June 12.	25.2	June 10-11.
Bon Wier, Tex.	20	June 2.	June 3.	20.2	June 3.
Orange, Tex.	4	June 2.	June 5.	4.3	June 4.
Trinity:					
Dallas, Tex.	25	14	(2)	34.5	17.
Trinidad, Tex.	28	17	(2)	39.6	22.
Long Lake, Tex.	40	26	June 12.	45.2	June 3.
Riverside, Tex.	40	31	June 4.	46.2	June 1.
Liberty, Tex.	25	16	(2)	28.3	June 2.
Trinity, Elm Fork: Carrollton, Tex.	7	13	19	9.3	16.
Brazos:					
Valley Junction, Tex.	44	30	30	45.3	30.
Washington, Tex.	45	31	June 5.	51.0	June 1.
Hempstead, Tex.	40	June 1.	June 5.	43.8	June 2.
Rosenberg, Tex.	40	June 3.	June 8.	46.2	June 6.
Freeport, Tex.	4	31	(2)	7.4	June 10.
Colorado:					
Austin, Tex.	18	28	29	25.6	28.
Smithville, Tex.	24	29	31	29.4	30.
Columbus, Tex.	28	29	(2)	37.4	31.
Guadalupe:					
New Braunfels, Tex.	20	29	30	21.8	29.
		26	26	23.7	26.
Gonzales, Tex.	22	{ 29	(2)	34.0	29.
		{ 21	21	17.3	21.
Victoria, Tex.	16	{ 27	(2)	25.7	31.
Nueces:					
Cotulla, Tex.	15	27	29	16.7	27.
Three Rivers, Tex.	37	30	(2)	42.0	31.
Rio Grande: San Marcial, N. Mex.	3	9	(2)	4.2	23-25.
PACIFIC DRAINAGE					
Colorado:					
Grand Junction, Colo.	11	27	27	11.3	27.
Fruita, Colo.	12	22	28	13.5	27.
Parker, Ariz.	7	(1)	(2)	11.9	30.
Colorado, Roaring Fork: Carbon-					
dale, Colo.	5	24	26	5.4	26.
Eagle, Eagle, Colo.	5	26	26	5.0	26.
		8	11	10.2	10.
Gunnison: Delta, Colo.	9	{ 14	(2)	11.7	26.
		{ 10	10	9.0	10.
Gunnison, North Fork: Paonia, Colo.	9	{ 15	26	9.5	26.
Green: Elgin, Utah	12	26	31	12.9	30.

¹ Continued from last month.

² Continued at end of month.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, MAY, 1929

551.5 : 6.33 (73)
 By J. B. KINCER

General summary.—Due to persistently cool weather and frequent rains, field work became very backward during the first decade over the eastern half of the country, especially in the central valley States. The latter part was rather favorable, which permitted considerable progress in plowing and planting, but at the same time it was too cool for good germination and growth. There was some local frost damage to fruit and the general wetness was rather unfavorable for pollination. In interior sections farm operations were considerably later than usual, but in the Atlantic Coast States active field work was permitted. Temperatures were favorable in the South and rains in the Southwest were beneficial, although there was some damage by excessive falls in parts.

During the second decade like unfavorable conditions prevailed that had previously retarded growth and work and, consequently, outside operations and growth were again delayed. Rainfall was moderate to light in the